

## CLAIMS

We claim:

1. A targeting construct comprising:
  - (a) a first polynucleotide sequence homologous to a BSMAP gene;
  - (b) a second polynucleotide sequence homologous to the BSMAP gene; and
  - (c) a selectable marker.
2. The targeting construct of claim 1, wherein the targeting construct further comprises a screening marker.
3. A method of producing a targeting construct, the method comprising:
  - (a) providing a first polynucleotide sequence homologous to a BSMAP gene;
  - (b) providing a second polynucleotide sequence homologous to the BSMAP;
  - (c) providing a selectable marker; and
  - (d) inserting the first sequence, second sequence, and selectable marker into a vector, to produce the targeting construct.
4. A method of producing a targeting construct, the method comprising:
  - (a) providing a polynucleotide comprising a first sequence homologous to a first region of a BSMAP gene and a second sequence homologous to a second region of a BSMAP gene;
  - (b) inserting a positive selection marker in between the first and second sequences to form the targeting construct.
5. A cell comprising a disruption in a BSMAP gene.
6. The cell of claim 5, wherein the cell is a murine cell.
7. The cell of claim 6, wherein the murine cell is an embryonic stem cell.
8. A non-human transgenic animal comprising a disruption in a BSMAP gene.
9. A cell derived from the non-human transgenic animal of claim 8.
10. A method of producing a transgenic mouse comprising a disruption in a BSMAP gene, the method comprising:
  - (a) introducing the targeting construct of claim 1 into a cell;
  - (b) introducing the cell into a blastocyst;

- (c) implanting the resulting blastocyst into a pseudopregnant mouse, wherein said pseudopregnant mouse gives birth to a chimeric mouse; and
- (d) breeding the chimeric mouse to produce the transgenic mouse.
11. A method of identifying an agent that modulates the expression of a BSMAP, the method comprising:
- (a) providing a non-human transgenic animal comprising a disruption in a BSMAP gene;
  - (b) administering an agent to the non-human transgenic animal; and
  - (c) determining whether the expression of BSMAP in the non-human transgenic animal is modulated.
12. A method of identifying an agent that modulates the function of a BSMAP, the method comprising:
- (a) providing a non-human transgenic animal comprising a disruption in a BSMAP gene;
  - (b) administering an agent to the non-human transgenic animal; and
  - (c) determining whether the function of the disrupted BSMAP gene in the non-human transgenic animal is modulated.
13. A method of identifying an agent that modulates the expression of BSMAP, the method comprising:
- (a) providing a cell comprising a disruption in a BSMAP gene;
  - (b) contacting the cell with an agent; and
  - (c) determining whether expression of the BSMAP is modulated.
14. A method of identifying an agent that modulates the function of a BSMAP gene, the method comprising:
- (a) providing a cell comprising a disruption in a BSMAP gene;
  - (b) contacting the cell with an agent; and
  - (c) determining whether the function of the BSMAP gene is modulated.
15. The method of claim 13 or claim 14, wherein the cell is derived from the non-human transgenic animal of claim 8.
16. An agent identified by the method of claim 11, claim 12, claim 13, or claim 14.

17. A transgenic mouse comprising a disruption in a BSMAP gene, wherein the transgenic mouse exhibits at least one of the following phenotypes: stimulus processing abnormality or prepulse inhibition abnormality.
18. The transgenic mouse of claim 17, wherein the stimulus processing abnormality is opposite to that observed in schizophrenia.
19. The transgenic mouse of claim 17, wherein the prepulse inhibition abnormality is increased prepulse inhibition.
20. The transgenic mouse of claim 19, wherein the increased prepulse inhibition is observed with a 100dB prepulse.
21. A method of producing a transgenic mouse comprising a disruption in a BSMAP gene, wherein the transgenic mouse exhibits at least one of the following phenotypes: stimulus processing abnormality or prepulse inhibition abnormality, the method comprising:
  - (a) introducing a BSMAP gene targeting construct into a cell;
  - (b) introducing the cell into a blastocyst;
  - (c) implanting the resulting blastocyst into a pseudopregnant mouse, wherein said pseudopregnant mouse gives birth to a chimeric mouse; and
  - (d) breeding the chimeric mouse to produce the transgenic mouse comprising a disruption in a BSMAP gene.
22. A transgenic mouse produced by the method of claim 21.
23. A cell derived from the transgenic mouse of claim 17 or claim 21.
24. A method of identifying an agent that ameliorates a phenotype associated with a disruption in a BSMAP gene, the method comprising:
  - (a) administering an agent to a transgenic mouse comprising a disruption in a BSMAP gene; and
  - (b) determining whether the agent ameliorates at least one of the following phenotypes: stimulus processing abnormality or prepulse inhibition abnormality.
25. A method of identifying an agent that modulates BSMAP expression, the method comprising:
  - (a) administering an agent to the transgenic mouse comprising a disruption in a BSMAP gene; and

- (b) determining whether the agent modulates BSMAP expression in the transgenic mouse, wherein the agent has an effect on at least one of the following behaviors: stimulus processing abnormality or prepulse inhibition abnormality.
26. A method of identifying an agent that modulates a behavior associated with a disruption in a BSMAP gene, the method comprising:
- (a) administering an agent to a transgenic mouse comprising a disruption in a BSMAP gene; and
  - (b) determining whether the agent modulates stimulus processing or prepulse inhibition of the transgenic mouse.
27. A method of identifying an agent that modulates BSMAP gene function, the method comprising:
- (a) providing a cell comprising a disruption in a BSMAP gene;
  - (b) contacting the cell with an agent; and
  - (c) determining whether the agent modulates BSMAP gene function, wherein the agent modulates a phenotype associated with a disruption in a BSMAP gene.
28. The method of claim 27, wherein the phenotype comprises at least one of the following: stimulus processing abnormality or prepulse inhibition abnormality.
29. An agent identified by the method of claim 24, claim 25, claim 26, or claim 27.
30. A transgenic mouse comprising a disruption in a BSMAP gene, wherein the transgenic mouse exhibits a stimulus processing abnormality or prepulse inhibition abnormality.
31. An agonist or antagonist of a BSMAP receptor.
32. Phenotypic data associated with the transgenic mouse of claim 17 or claim 22, wherein the data is in a database.